

Brain Drain: Problem of Contract Migration in Russia

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The peculiarities of international cooperation of Russia in R & D sphere cannot be investigated out of general problems of external migration of scientists and specialists (including outflow of those leaving for permanent residence, for contract-based employment, training, long-term business trip, etc.). Contract-based migration of scientists is one of the basic forms of the international contacts. It witnesses that international labor division process in the sphere of science & technology got more profound. At the same time in Russia this process turns into quite controversial forms.

Emigration of scientists or their long-term work abroad has not still become a form of normal scientific exchange, retaining all the characteristics of the one way “ brain drain ” - the problem of many developing countries and countries of transitional economy. In this case the discourses about Russian scientists making the world science more rich are just partly valid.

The internal migration of scientists in the hope of a better life and professional growth appears to be the visible element of the Russian situation during the last years. In general the reference to this problem is associated with the troubles in R & D sphere. The outflow of highly-qualified personnel directly affects national interests of Russia, its military, economical and technological security.

With regard to this tendency, the world community also shows some anxiety. The former forecasts (made in the late 80s) of great scale emigration outflows and the emigration of military (especially “ nuclear ”) specialists to the countries with unstable political regimes are at the basis of this anxiety.

The analysis of the statistical data and expert estimates of scientists migration intentions show that those forecasts have not proved to be correct and the process itself is stabilizing.

Scientific workers share is not large in the total amount of emigrants - 1 % in average. If this category is enlarged so as to include emigrants of the teaching staff (higher education), engineers, heads of enterprises and students, then science intensity of emigration flows from Russia will in some countries exceed 20 %. This displays the sufficiently high quality of emigration from Russia. In general share of higher educated people emigrated from Russia is equal to 20 %.

With the main stream of emigrants departing to Germany, Israel, Greece and USA (mostly as ethnic emigrants), the most “ scientific ” of these streams are departing to USA and Israel. According to our data, the most “ educated ” (persons with higher education share in the total amount of emigrants from Russia to this country) of the streams of emigrants is that to Austria (60 %), France (52 %), USA (48 %) and Canada (40 %).

The territorial structure of external intellectual migration in Russia shows great variation and depends on the level of development and scientific specialization of different regions. The most intensive exodus abroad is observed in Central (Moscow), Northwestern (St.-Petersburg) and West-Siberian (Novosibirsk, Tomsk) regions.

The motives for scientists emigration is determined by a complex of “ background ” (economical and political instability, uncertainty of the near future, reducing of the standard of living, low social status of science, inclaiming of scientific results and lack of perspective) and “ professional ” (lack of interesting work, bad conditions for professional activity, intention to rea-

lize scientific ideas and to integrate into the world scientific community) factors. Economical and political instability and inclaiming of scientific results were on the first place among all these factors in 1989-91. The situation has changed later and income level (and the standard of living in general) establishes itself firmly at the first place among the motives for migration.

Emigration becomes more preferable and even easier than any migration within Russia in a search for worth and high remunerated jobs. Thus, the main factors stimulating scientists to leave abroad coincide with factors “pumping them out” the scientific activity. For all this, leaving for different commercial, production, administrative and other structures is more massive. Material component is also important for scientists leaving abroad for contract work. At the same time, the last years have added some new “shades” to this process.

The inquiry into scientific institutes with considerable emigration potential showed that their authorities were estimating emigration processes with restraint. Underlining the importance of this problem for Russia (especially for the retaining of scientific schools) and the damage that emigration of separate scientists makes to the concrete research fields they point the following essential facts: predominance of emigration owing to “family affairs” not to professional ones, weak university graduates inflow to institutes sets the problem of scientific succession more sharply, preference of the contract employment to the straight emigration, appearance of the new self-realization opportunities in scientific institutes of Russia, aspiration of scientists who work abroad for retaining contacts with Russian institutes, - considerably larger damage made to science by internal migration and “erosion” of scientific activity caused by insufficient state support to science, privatization and other processes taking place in the R & D sphere in Russia.

However, the facts of the migration flows stabilization listed above do not give any reason for optimism. Since living standards in Russia do not fit with western standards for yet a pretty long time, some part of scientists (especially young ones) who are capable of selling their knowledge on a foreign labor market will make active efforts for emigration.

Along with “pumping out” factors some restraining factors are valid. Among them there are: the “immigration capacity” of western countries; the uncertainty of getting a job in the future, the inequity of qualification standards, the usual conditions of research activities, the arrangement of scientific work; the dissatisfaction of the conditions and terms of contracts and other factors.

The expansion of contacts itself, the large volume of information about living and working conditions in foreign countries that scientists have, make their approach towards the problem of getting a job abroad more weighted.

The problem of “brain drain” within the process of international contacts expansion should be solved by Russia’s own forces. But we may count on interest and understanding of the international scientific community when solving it. Western states, international organizations, national scientific communities and individual scientists are anxious about one of the largest world scientific systems destruction. So they see stimulation of the “personal” migration, provision of conditions for the full-value work of Russian scientists in western laboratories as possible ways of Russian scientists return to the world science. Nowadays all the economically developed countries which are interested in the personnel of Russian science conduct a purposeful immigration policy. An indisputable interest in Russian scientists and specialists is shown by developing and new industrial countries. These countries work out programs of Russian scientific immigrants employment, as suffering “brain drain” themselves.

Another way - is the support of R & D activities in scientific organizations of Russia. This widely advertised abroad approach finds support of scientific communities and state organizations of Russia.

But it should be noticed that the support of science in Russia is very limited. Conditions of the contracts of this kind are estimated by the Russian side as insufficient, especially concerning the items of remuneration. Some surveys show that even the managers of large scientific organizations having contacts with foreign partners, point out that conditions of these contracts had become worse.

At the same time, state structures of many western countries are anxious about the problems coming along the emigration from the former USSR (competition enforcement, introduction of different cultural values, etc.).

Thus, despite the desire of many scientists to leave abroad (forever or for contract work) only a small minority of them is able to achieve this goal retaining themselves within science. This minority, in fact makes up the main and the most important component of “ brain drain ”.

Some emigrants are forced to change their sphere of professional activity when leaving, in this case Russia loses a scientist and the host country gets a potential unemployed. Another part of emigrants lowers its status. In this case losses of Russia are not compensated by the “ acquisition ” for the world science which has been widely discussed at the beginning of the 90-s.

The purpose of this research is the determination of the objective parameters, which characterize international contacts of institutes and scientists. The report presents some results of inquests of heads and staff members of academic institutes and of state scientific centers in Russia. Inquests involve scientists who worked abroad and took up research within international projects. Results of the sociological inquests witness the enforcement of Russian scientists aspiration for contract work. Fifty two percent of questioned RAS scientists made the material side of their life improve “ owing to the hard currency earned abroad ”.

Estimates of opportunities that work abroad provides to scientists are given in table 1. Opinions of scientists working for contracts include more considerations of professional opportunities knowledge application, access to information and to material & technical base, professional contacts and even working climate- than opinions of those who migrate on a permanent basis.

The additional motivations are more independence and self-dependence and understanding of the importance of integration into a scientific community,

Name, references, institute status, projects reputation, participation in the international events, these and other factors determine both nowadays professional and material opportunities of effective professional career promotion in the future.

Geography of the RAS scientists foreign visits and work abroad comprises over 30 countries and 150 cities. The major part of scientists worked in Germany, USA, France and Italy. 50.8 % of respondents worked in universities, 14.6 % in scientific centers, 22.7 % in institutes.

Most scientists left under invitations of foreign organisations (49.2 %) and under personal incentive (20.3 %). 26.6 % of scientists worked within agreements between institutes.

Conditions of sending on business and leaving on personal incentive are of a great importance for understanding the conditions of international contacts of scientists and their influence on the possibility of the contract migration transformation into permanent one or re-emigration.

Table 1. Expected opportunities that work in foreign scientific organizations can provide to scientists (% relation to the amount of respondents who marked these opportunities with 4 or 5, when 5 is maximum)

More complete realization of knowledge, skills	- 87 (75)
Work with competent colleagues	- 74 (58)
Opportunity to make a contribution to the development of science in your branch	- 78 (74)
Work with qualified managers	- 38 (46)
Benevolent psychological climate	- 70 (74)
Rate of salary appropriate to qualification	- 78 (60)
Scientific contacts with specialists	- 76 (80)
Good material & technical base for research	- 90 (90)
Access to scientific information	- 89 (84)
Work on problems important for the revival of Russia	- 40 (32)
Training and development	- 71 (67)

Note: Estimates of real opportunities are given in brackets.

Almost all respondents retained their position in regular staff list of an institute. There are different ways of solving the problem of salary retaining for employees working abroad. 23.3 % of employees sent on business retain 100 % salary, 33.3 %, 50 %, 42.8 % had no salary retained. Most respondents consider these conditions appropriate. Agreement between organization and employees is one of the most important characteristics of any job. Half of the respondents worked with no documentary registered written agreement, contract, which surely made their living and working conditions abroad worse, and witnessed the absence of the contract work experience. Concerning the remuneration conditions, up to 45.3 %, of respondents consider that their earnings were equal to the remuneration of workers of the same official status. At first sight, this result does not correspond to the opinion widely spread within scientific circles that Russian scientists get considerably “ underpaid ” signing the contracts for the work abroad. However, at this point, the following factors are to be taken into account : answering these questions, scientists compared the rate of their salary abroad to their salary in Russia. Moreover, even considering this factor, nearly 37 % of scientists estimate their income as not corresponding neither to values and quality of work nor to their skills. Analysis of the full pattern of answers and interviews with separate scientists and managers shows that the majority of them was mainly not satisfied with their labor remuneration abroad.

Presence or absence of conflict situations, their sources and ways of solution is one of the most important characteristics of the living and working conditions of a scientist. The more so, as most respondents considered good working psychological climate as one of the motives for working abroad According to the inquiry, only 12 % of respondents faced conflict situations. Financial problems, restrictions for extra-time work, unusual research arrangements were reasons for those conflict situations.

In spite of the conflict character, all of them, as respondents testify, were solved by discussions and negotiations. But we can suppose that many respondents held back the collision of interests and dissatisfied professional ambitions.

The attitude toward the working conditions abroad is mainly formed under the influence of the difficulties the scientists suffer by being in unusual situation. Thus language barrier (34.9 %); new devices and technical equipment (16 %); difference in scientific approaches (11 %), dissociation (11 %); difference in cultural environment (7 %) are mentioned most often.

The given list display how complex and different are the conditions of possible Russian scientists work abroad. Most scientists point the absence of conflict situations and, at the same time, dissociation and absence of contacts as one of the main obstacles that scientists face abroad.

Opportunity, to apply new facilities and equipment is called one of the professional reasons that induced scientists to contract emigration. At the same time, 11 % of scientists faced difficulties applying new facilities, 16 % applying new approaches. Problem of the intellectual property protection is of major importance for all aspects of international cooperation. First of all, the fact, that actually, the majority of scientists ignore the problem of their rights, grasps the attention (see table 2).

The interpretation is easy and hard at once : the sense of ownership in intellectual sphere had been suppressed within the Soviet reality. Lack of knowledge of laws and of practice of the

Table 2. Estimation of the intellectual product protection conditions (147 respondents total)

Amount	% relation to total
Yes	30.6 (45)
Partly	8.8 (13)
This problem hadn't existed for me	47.6 (70)
Find it hard to answer	9.5 (14)

contract working out and even light-minded attitude to this should be added. Although scientific organizations and juridical services try to patent many of them cannot pay for that. If patent services (consisting of 1-2 men) are more or less supported in large institutes than lawyer in institute works for just several hours a week. No one even dreams of a lawyer with international experience. It should be mentioned here that not even a simplest document is signed by western firms or specialists without the detailed consulting with juridical services. Anyway, Russian scientists have a lot to learn from their foreign colleagues, who have been trained and are functioning within the conditions of the world information market. In the Russian reality we must teach our scientists the sufficient value of knowledge, arrange the propaganda of the foreign experience in this sphere through the system of scientific periodicals.

In these conditions the fact that 40 % of the respondents consider that their work abroad is profitable mainly for foreign partners becomes not astonishing.

Intensity of respondents connections with their institutes is the important factor forming scientists' attitude to the work abroad. This is a very important characteristic that features temporary migration and defines the efficiency rate of scientific contacts.

According to the inquiry, abroad research subjects of the majority of the respondents (75.8 %) were much linked to the problems of the institutes they had worked for before leaving, though in many cases it had been defined in foreign laboratories. About 70 % of the respondents have informed their institute of their work somehow. The overwhelming majority of them remarked in their publications that they belong to Russian institutes. According to the inquiry, arguments of foreign entities against this were very exceptional.

Despite obvious problems, most Russian scientists would like to remain "faithful" to their professional career. Most respondents gave a positive answer to the question on the close prospects of work in Russian institutes.

These estimates are pretty astonishing as considering all the well-know facts of the Russian reality. Opinions of the heads of the state scientific centers will allow to estimate this "phenomenon". Many of them point out the following: 2-3 years ago work abroad was undoubtedly the most profitable alternative. Nowadays, in spite of the continuing crisis in science and all the remaining advantages of the contract work, some opportunities of the new essence have got to exist in the R & D sphere in Russia. They will allow scientists to make good earnings at home.

It is important for scientists to estimate the possibilities of retaining their status and rate of salary when making the decision to work abroad. For all this, those who have left, almost always gain higher salary rates, but only a few of them manage to retain their status.

The research conducted does not allow to appraise all the questions of the Russian scientists international cooperation. Only a definite part of the Russian scientific community - scientists and heads of academic institutes and heads of the state scientific centers - was set as the object of analysis. As these very sectors of Russian science are much involved in international relations, the results obtained, however, are of some interest for analysis of the general problems appearing in this sphere, by our opinion.

Modern development of the world science and processes taking place in Russia will surely reflect on the state of its international relations. On the one hand, the value and quality of its scientific potential does not allow Russia to stay away from the solution of the global problems of economical and scientific & technical development. On the other hand, - under the pressure of the local problems, Russia is not only losing its scientific potential but also weakening its positions in the world science and losing advantage of its integration into the world scientific process. In particular, migration of scientists (including contract migration) lowers the "critical mass" necessary for balancing scientific and production potentials of Russia in general and of potential concrete organizations.

In spite of Russian authorities and foreign states representatives assurances that scientific contacts with Russia must be formed only on the basis of mutual profit, there is an international support of the Russian science achievements realized on one hand, while a one-sided utilization of its scientific and technical achievements and personnel potential is taking place on another one.

Today, the situation of development in Russian science has two speeds. Some scientific collectives and individual scientists try to adapt to the new conditions using foreign aid, international contacts and local alternative sources of financing. Others, in conditions of poor inner financing, do not have the opportunity (or skills) to obtain the foreign aid or use the international cooperation opportunities in some other ways. The current situations in these two groups defer considerably. But they also have something common - the future depends on the revival of the Russian economy and of political stabilization.

Despite obvious problems, many scientists are not going to give up their scientific career, or to combine it with some other activity, and do not plan to leave science for commercial structures

A work abroad remains one of the most attractive directions of professional activity : it is the orientation of 63 % of the Russian Academic of Science workers. Some institutes have 85 % of scientists preferring to receive grants and contracts to work- on the basis of them.

Working abroad gives scientists undeniable advantages. Among them the material advantage plays an "honored" but far from the only, important role. Conducting a research on a good material and technical basis, the possibility to apply the brand new scientific information are not of the least importance for scientists. A considerable addition to the pointed list are motives of more independence and self-dependence as well as higher opportunity of grant reception in Russia and abroad. Approximately 80 % of Russian scientists published the results of their studies abroad in prestigious foreign magazines. Working abroad make scientists more informationally rich, helps further broadening of the international contacts. However, because of some well-know obstacles, foreign publications - inaccessible to the majority of Russian scientists - fall out of national scientific turnover, making home research poorer. Russian institutes do not track foreign publications of their workers, do not conduct any analysis of them. Indifference of the majority of respondents concerning the protection of rights to the scientific product they created is a serious preoccupation.

According to the respondents, it would be expedient for international contacts development to establish - under the experience of many foreign countries - professional associations of expatriate Russian scientists supported by the state institutes. These associations may be useful either for scientists themselves (58.6 % of positive answers) and for Russian science (52.6 %), and should make their contribution to creation of premises for the Russian scientists repatriation. These associations are able to help Russian scientists to adapt better for working and living conditions abroad, including their rights protection.

At our point of view, it is necessary to create Russian professional associations abroad involving straight participation of the state organs.

Foreign experience shows that realization of this measure will help to unite not only temporary Russian migrants but our former compatriots either, and will also create some prerequisites for re-emigration.

Analysis and generalizing of the inquiry results display that to the interest of the further international contacts development, allaying the problems of brain drain and solution of other problems, arising the international cooperation, it is necessary to clarify the understanding of structure, trends and specificities of the scientific personnel flows in Russia.

Expansion of scales and modernization of forms of the international relations is the source of migration flows regulation. It prevents from the non-controlled spread of scientific &- technical activity result, promotes the foreign capital attraction to Russia. All this positively influence the securing of scientific and technical personnel within the country.

However scales of Russian scientists emigration are connected with a complex of reasons, the short-term overcoming of which is not possible, and which require the state regulation; for example within the interdepartmental program of regulation of the scientific & technical personnel migration. Legislative securing of the organizational legal base of the emigration flows regulation means acknowledgment of this process as the objective factor of international life and allows to introduce it to normal civilized limits.

1. Some experts estimate the share of R & D-engaged specialists (including scientists, auxiliary personnel and some other categories)- number of employees of the sector “ Science and Scientific Services ” in Russian official statistics - in the total amount of emigrants equal to 2 % (or about 2 thousands in 1994). These estimates are calculated on the basis of industrial distribution of all employees and seems too be overstated for us.

2. Inquiries display that 7 % of students of the metropolitan universities already have concrete proposals from foreign firms (in some universities, for example MPTI, this rate shares the major part).

3. By the estimations of specialists of the Ministry of science the scientific personnel outflow to these structures is nowadays approximately 10 times bigger than leaving abroad. Due to the estimations of the specialists of the Analytical Center, approximately 5 % of the total reduction in R & D-engaged personnel is their outflow for permanent residence, training and contract-based employment abroad.

4. The inquiry is a part of the large project on mobility of scientific personnel of Russia and carries on series of works on the analysis of the support and development possibilities of the scientific organizations potential conducted by the Analytical center for scientific and industrial policy.

Estimates of the contract emigration are obtained during the inquiry, into the RAS institutes conducted by the group of sociologists under the supervision of D.D. Raikova in 1994. Inquiry comprised 170 scientists from 8 RAS institutes (of biological, physical and chemical profile). Results of inquiries into 40 state scientific centers, conducted by the Analytical center workers in 1995, were also applied.